

FIG. 1

10

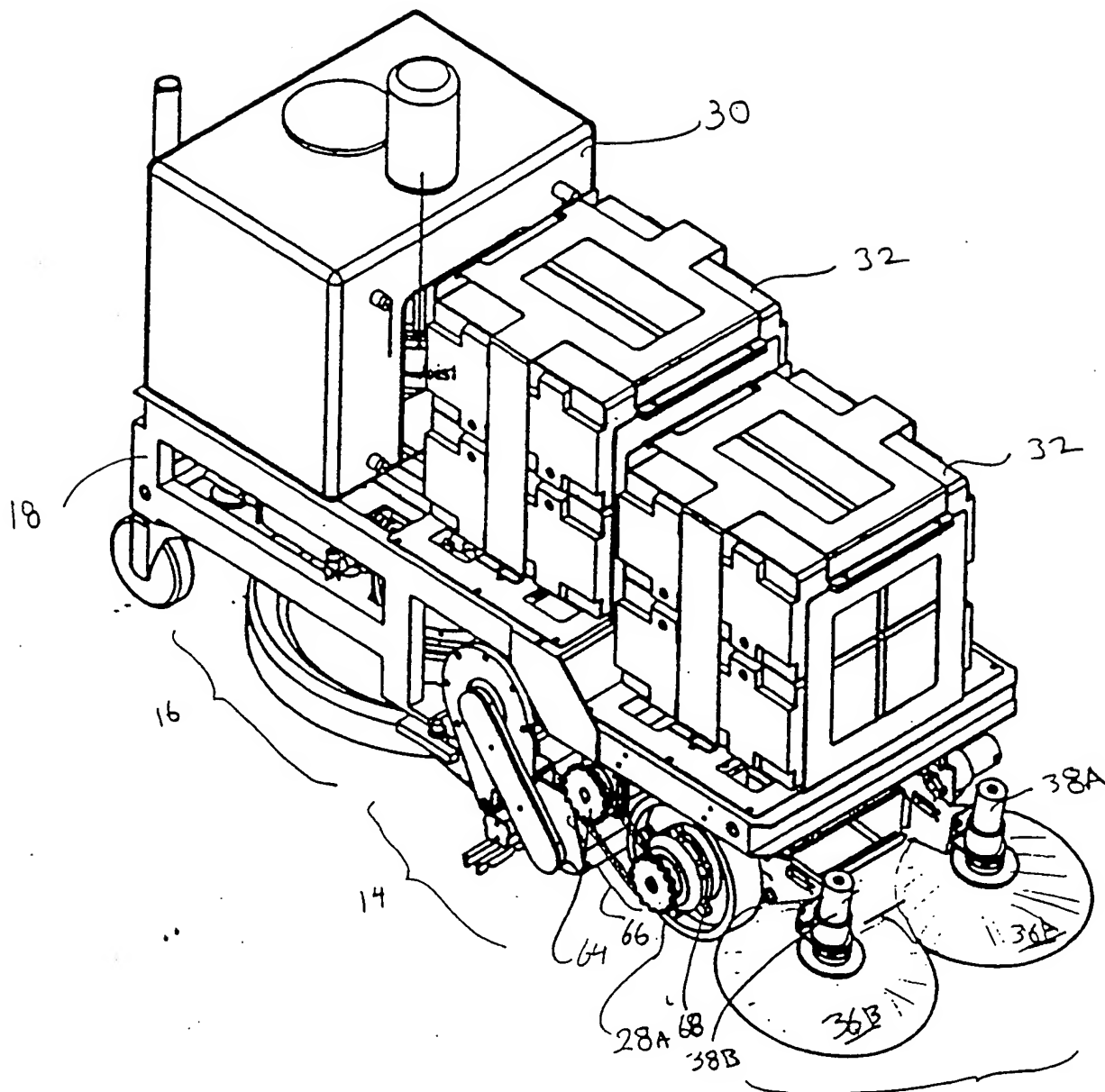
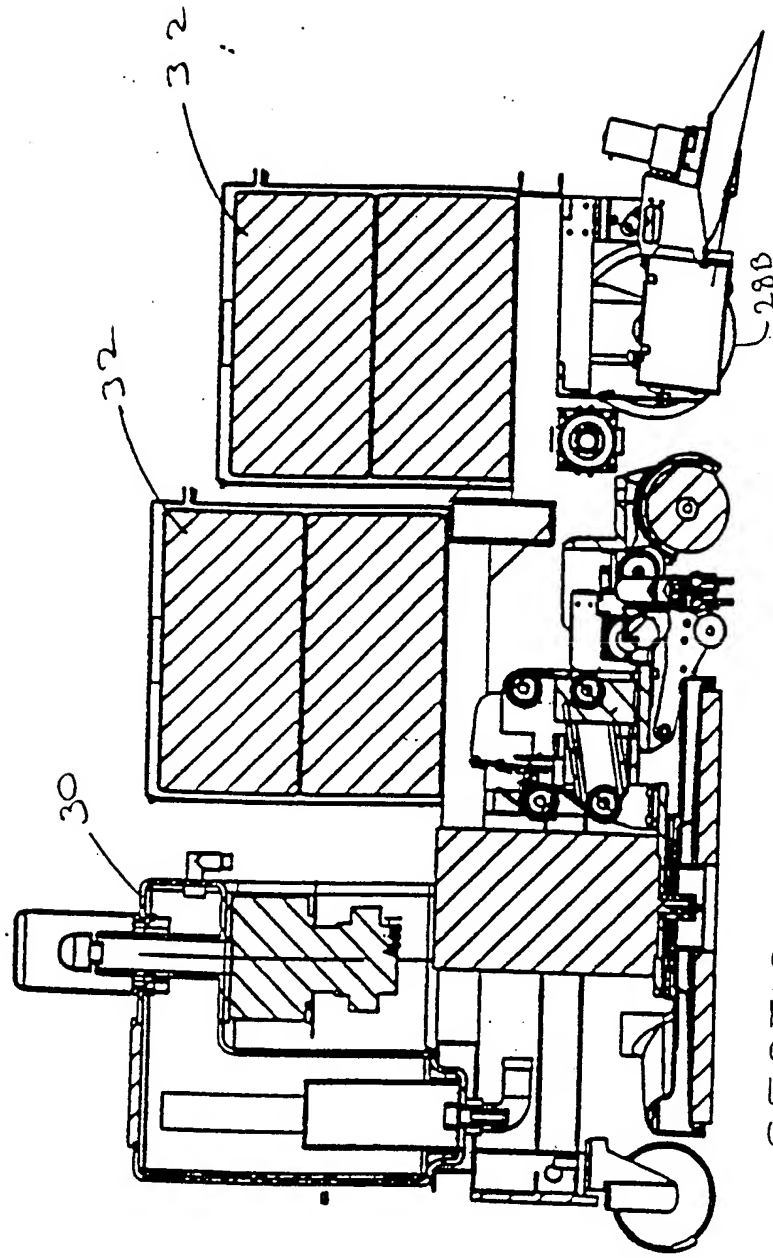


FIG. 2



SECTION A-A

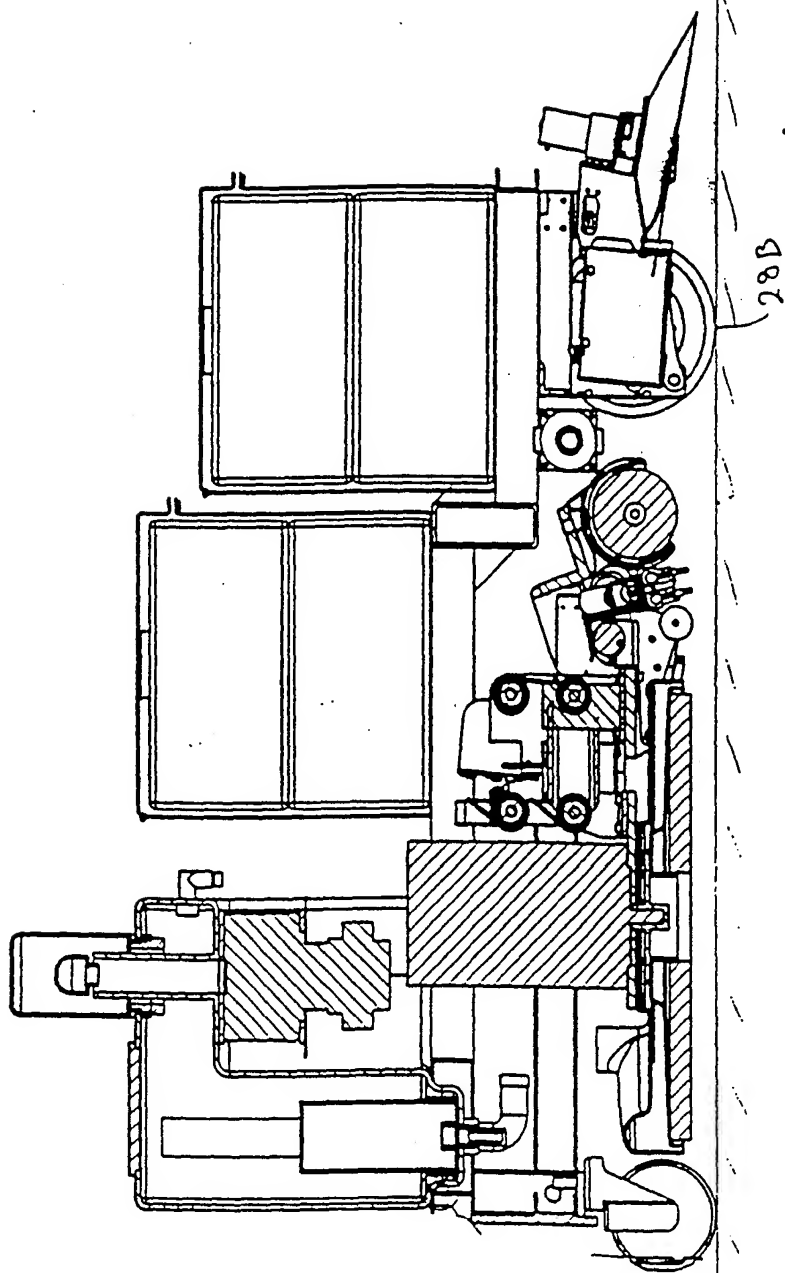


FIG. 3A

12

14

16

12

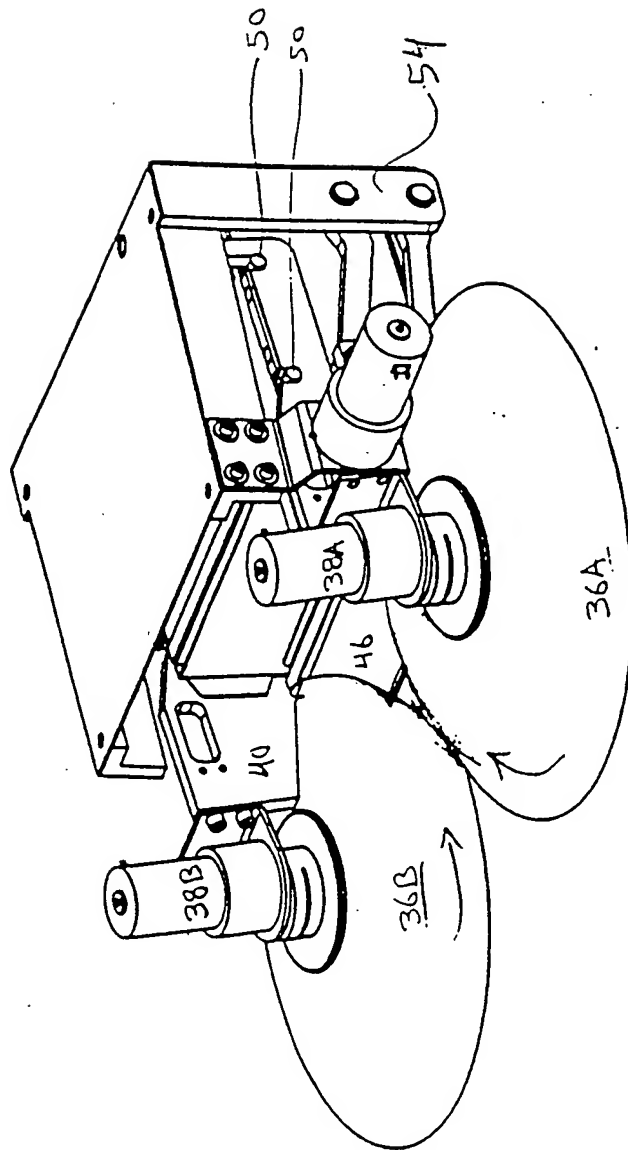


FIG. 4

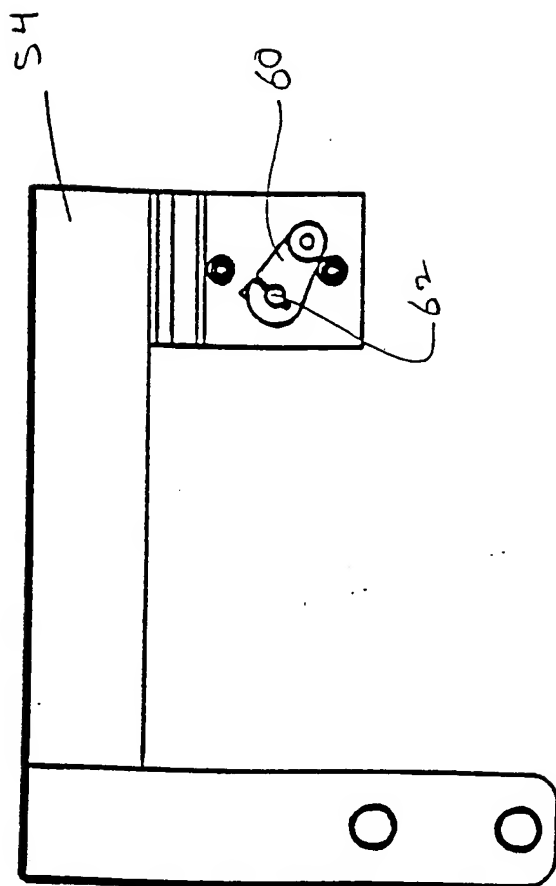
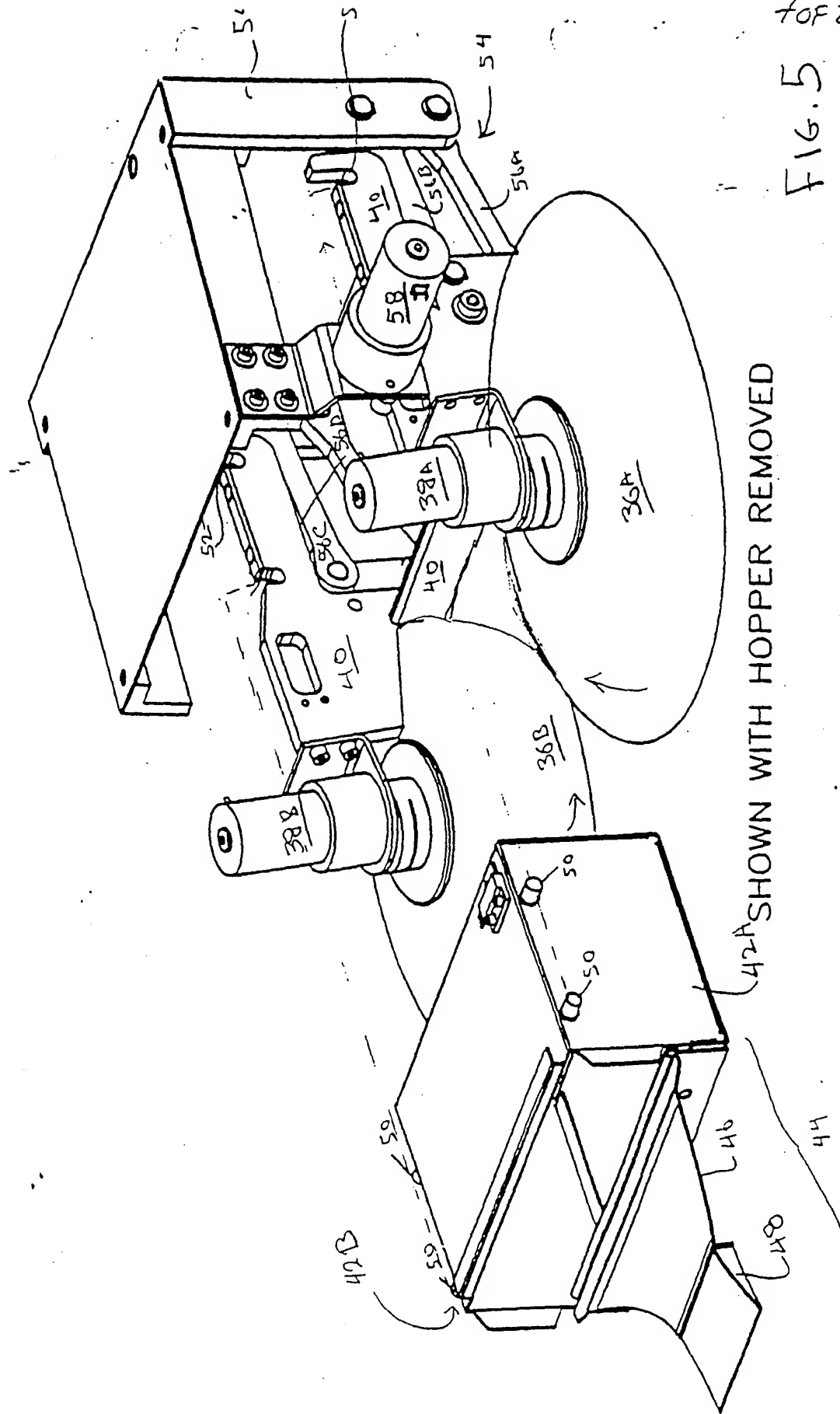


FIG. 4A

FIG. 5

512



12
↙

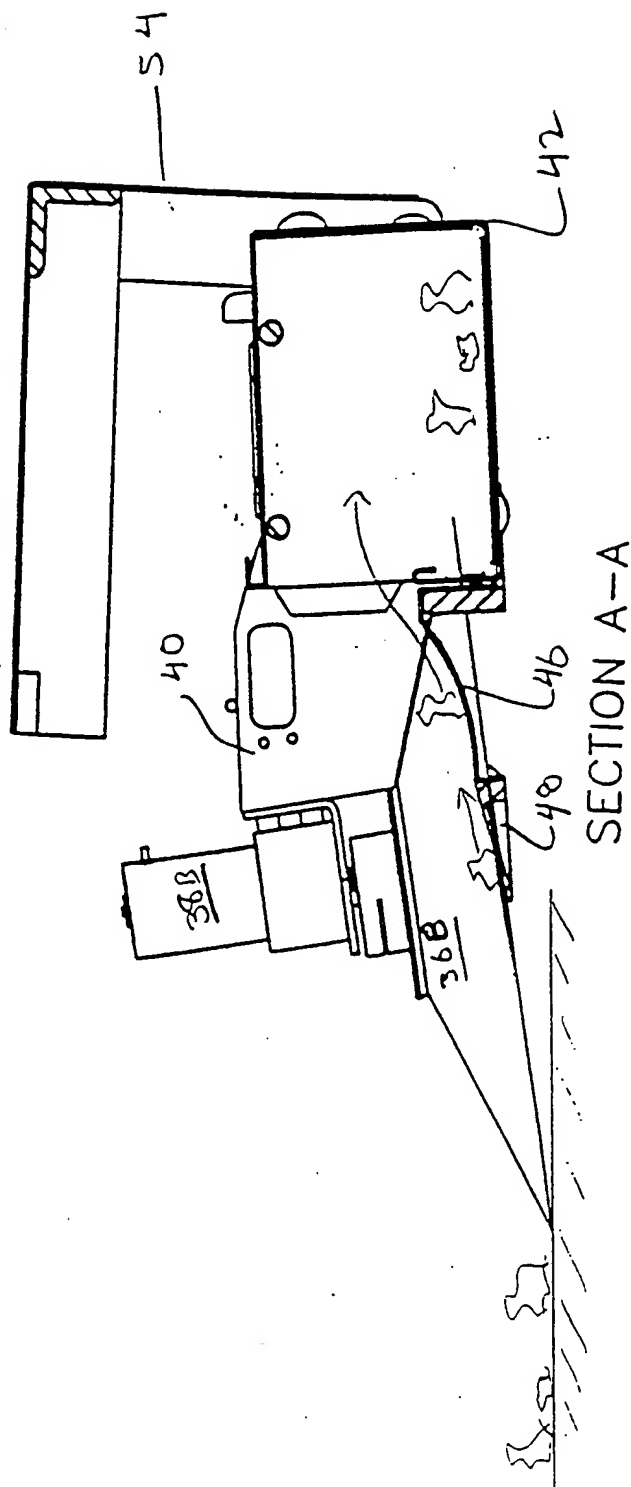


FIG. 6

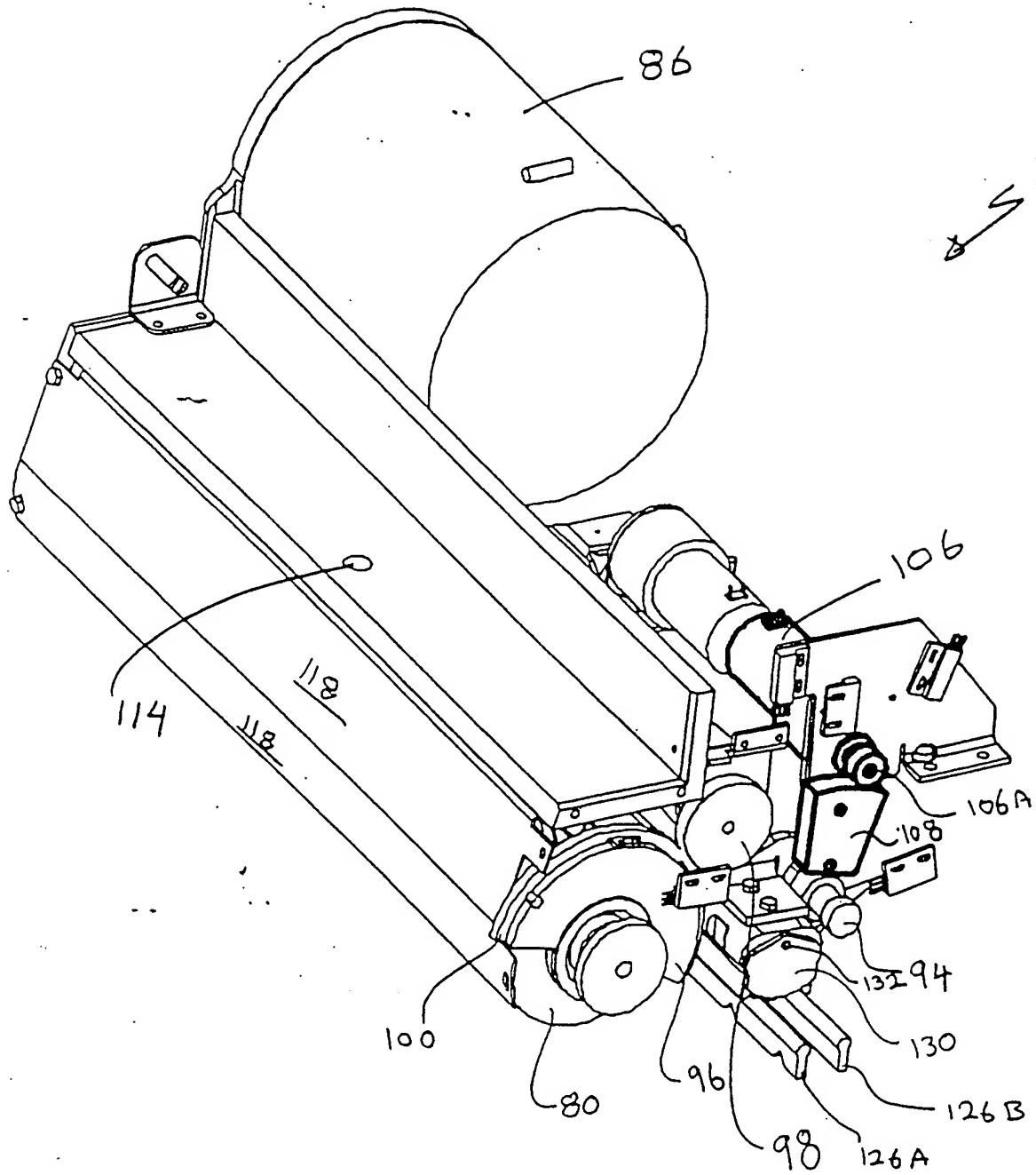


Fig. 7

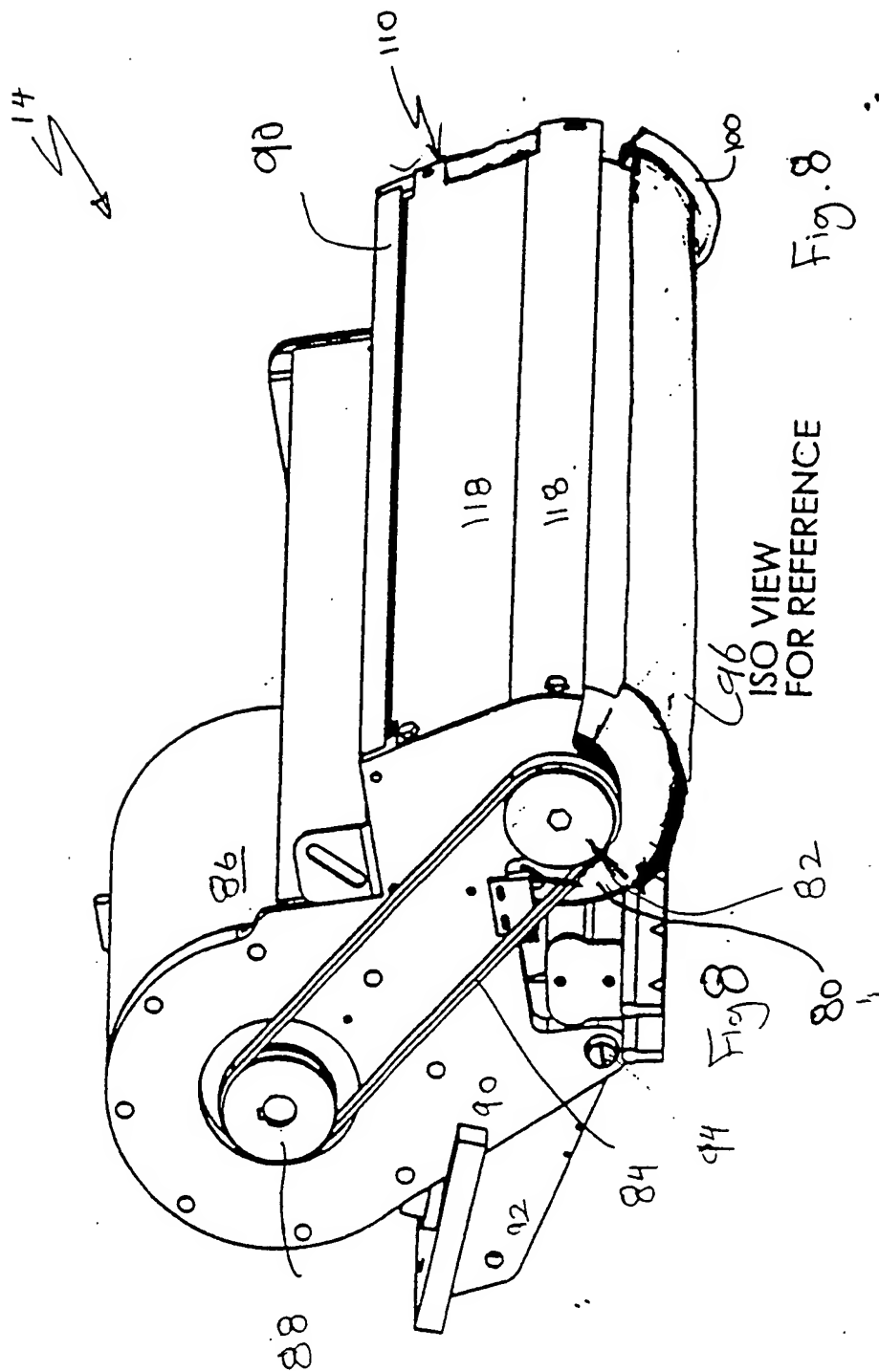
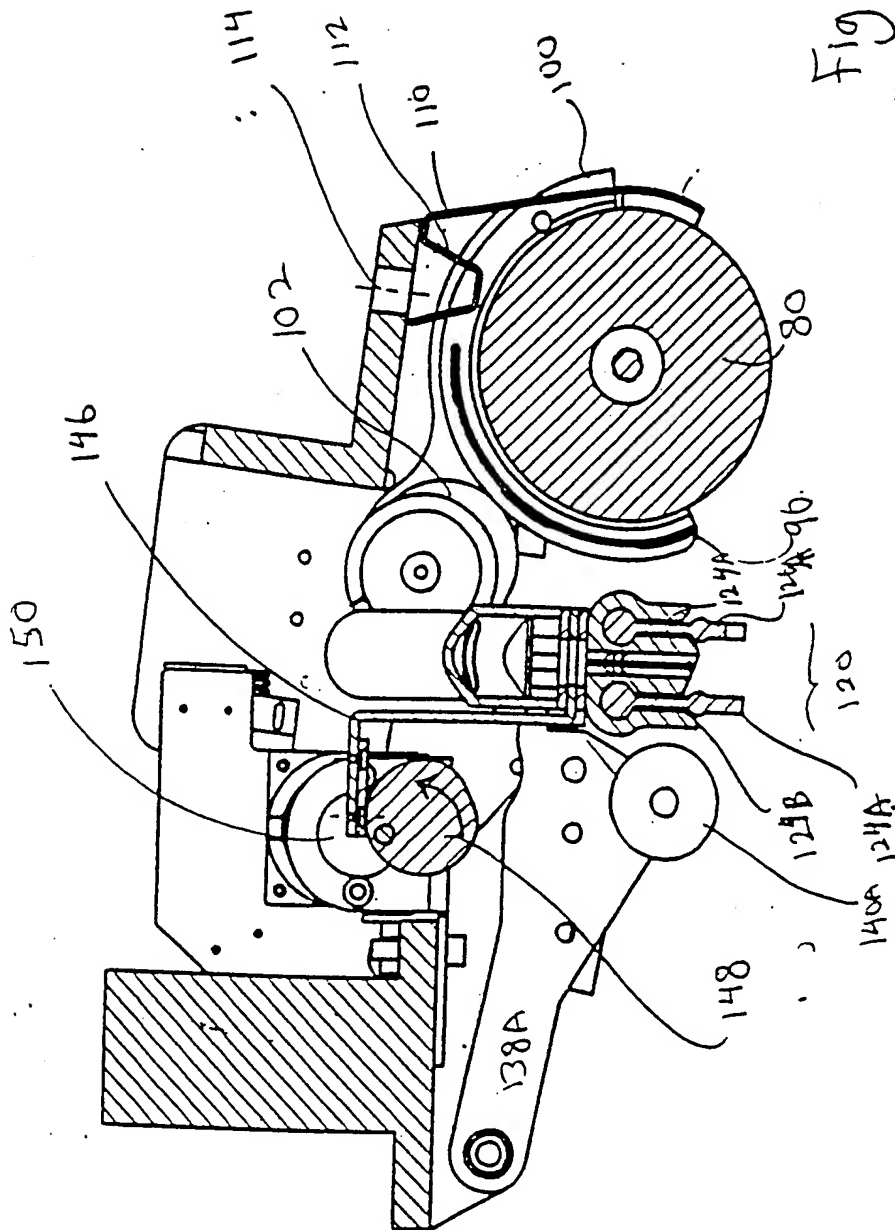


Fig. 9

14



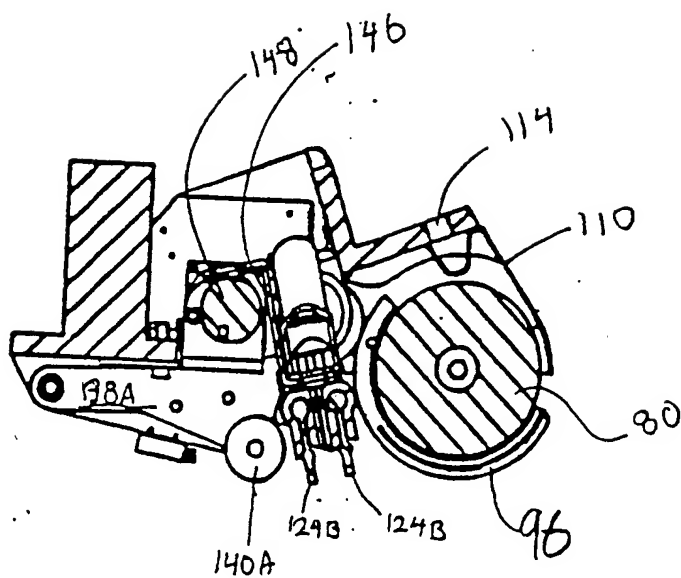
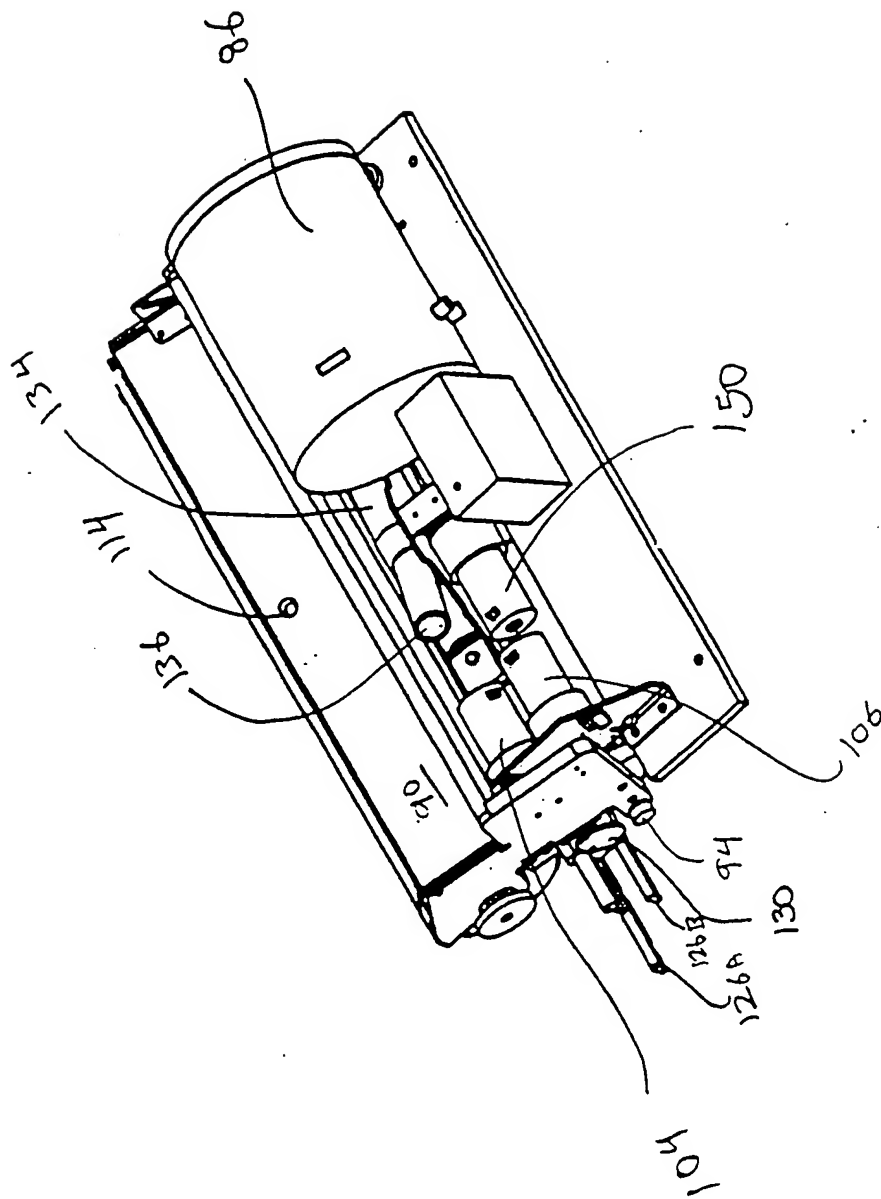
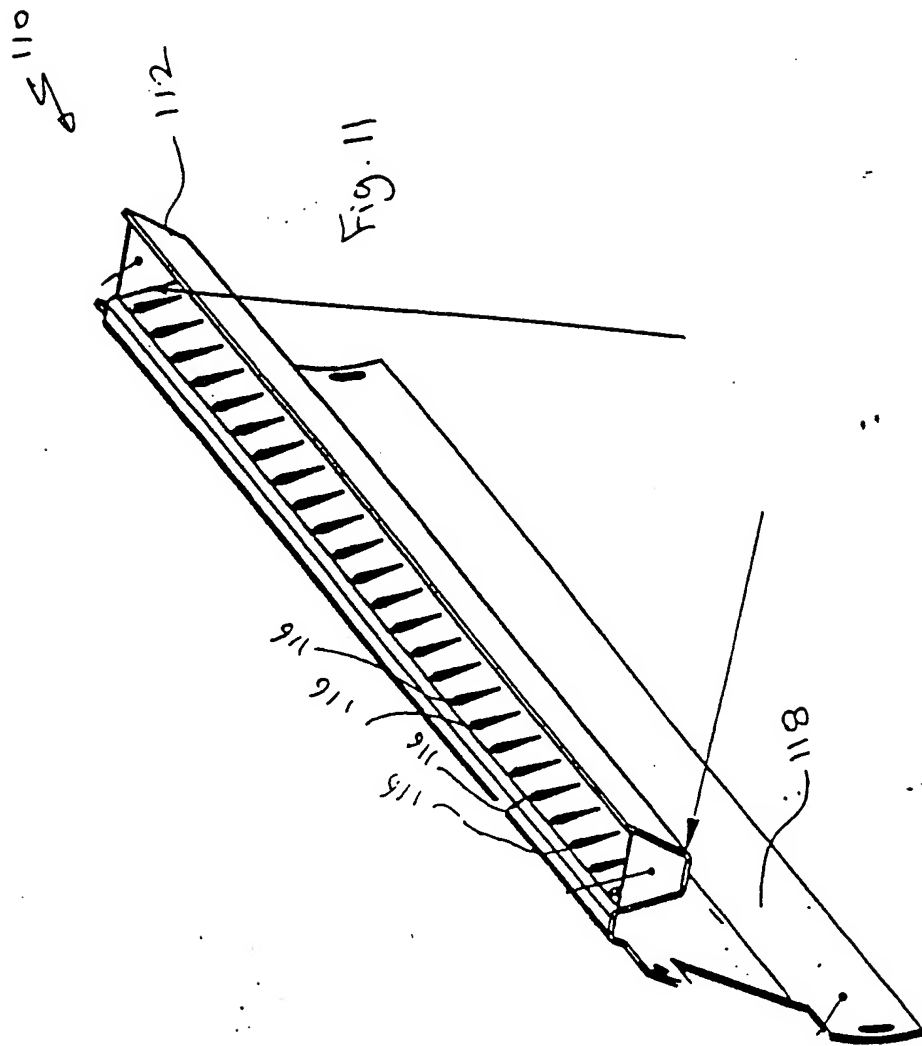


Fig 9A

Fig. 10





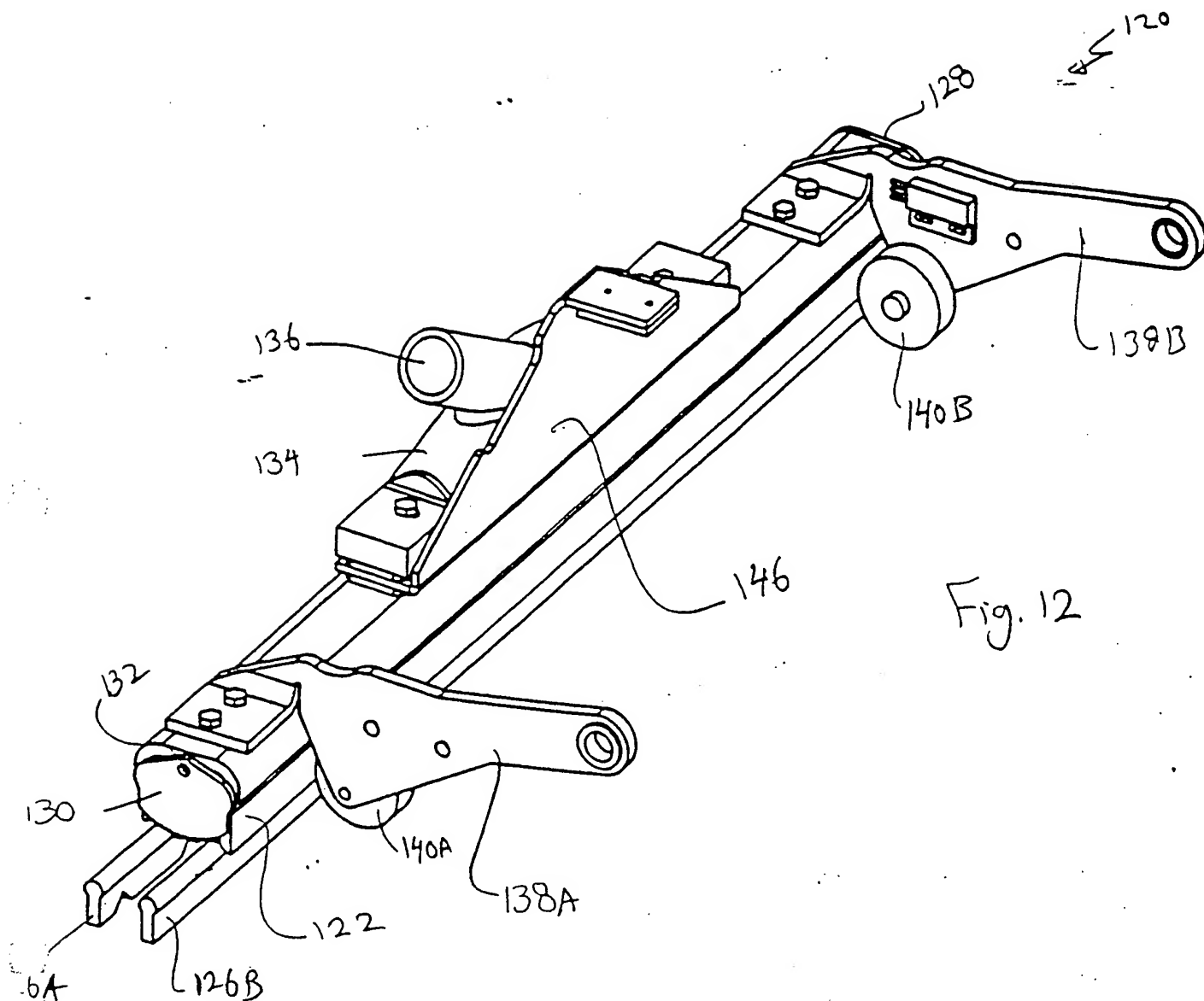


Fig. 12

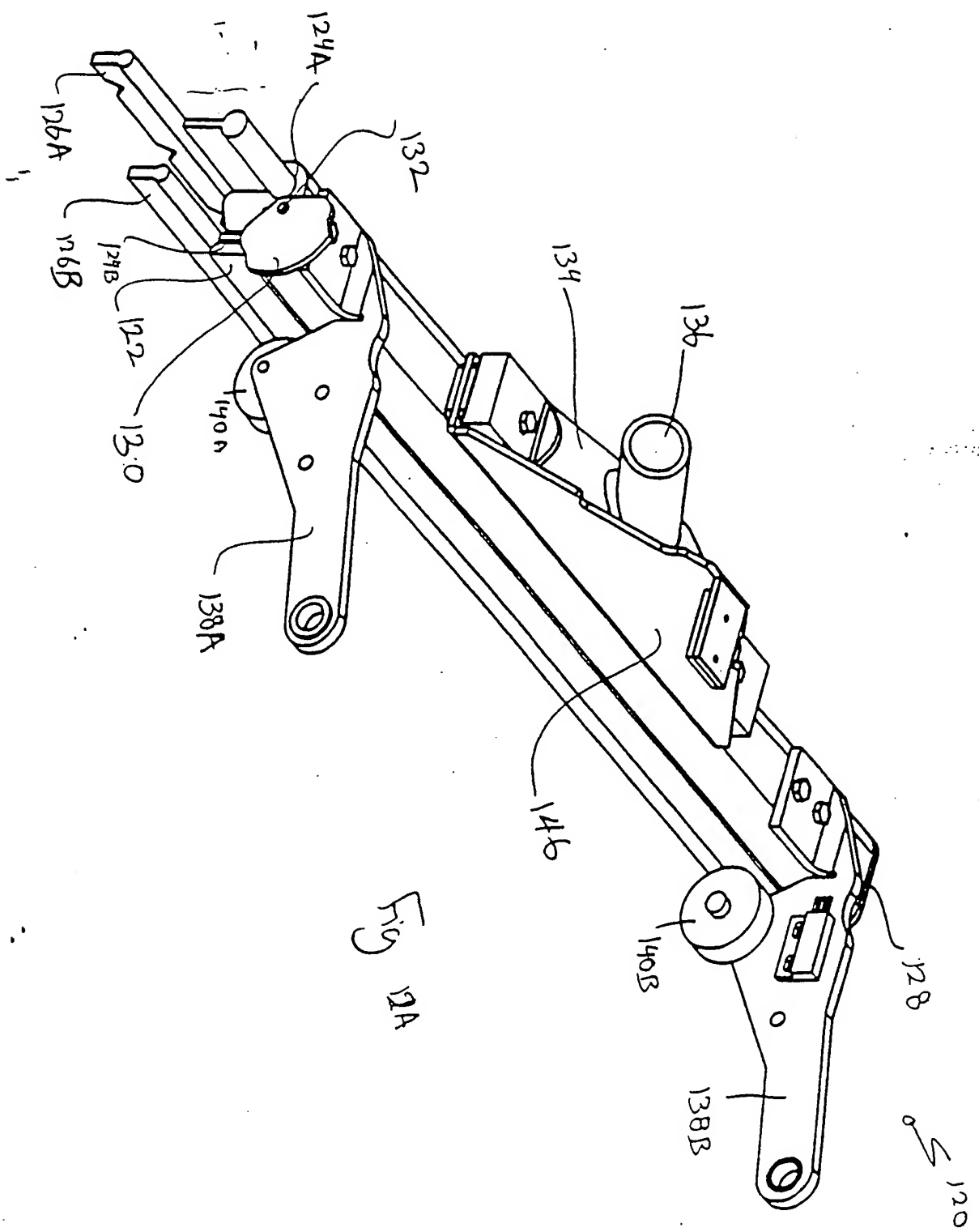
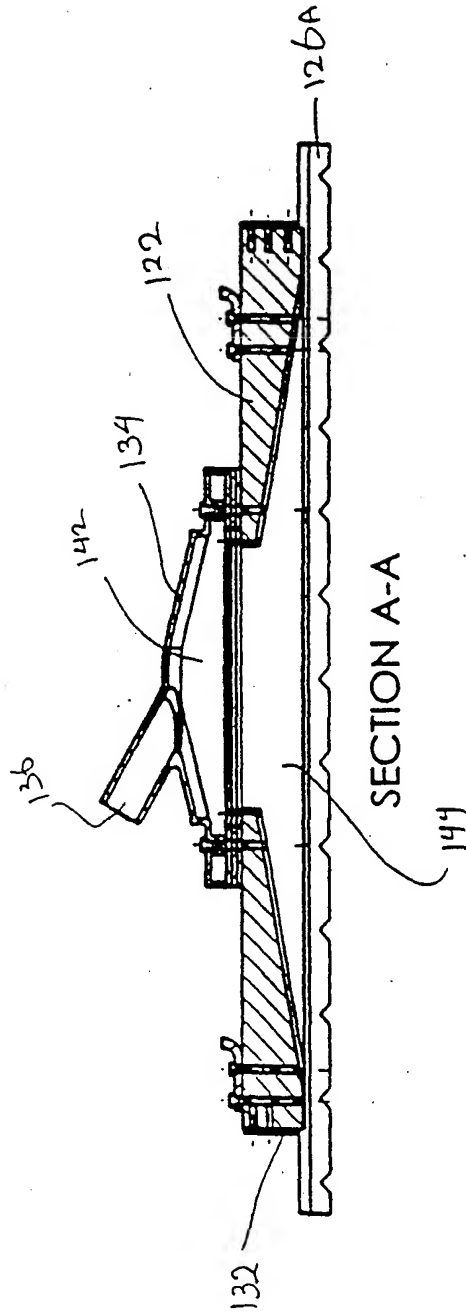


Fig 12A

FIG. 13



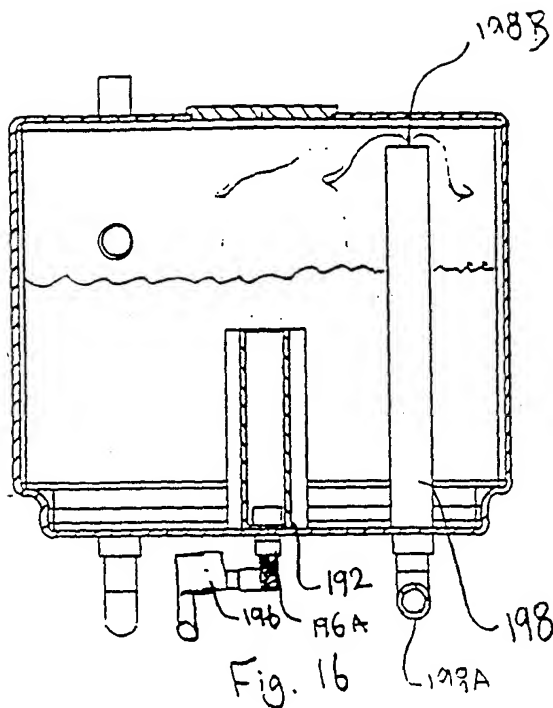


Fig. 16

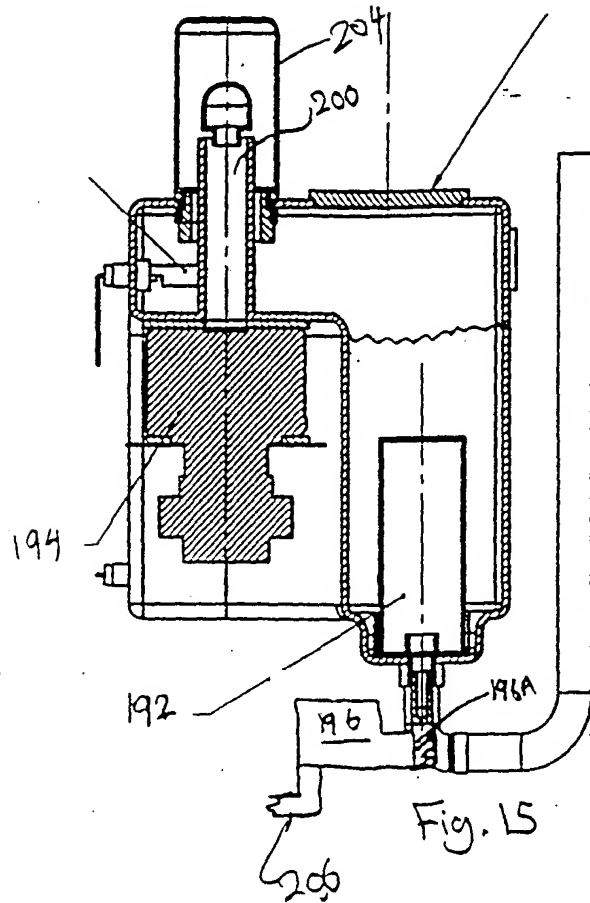


Fig. 15

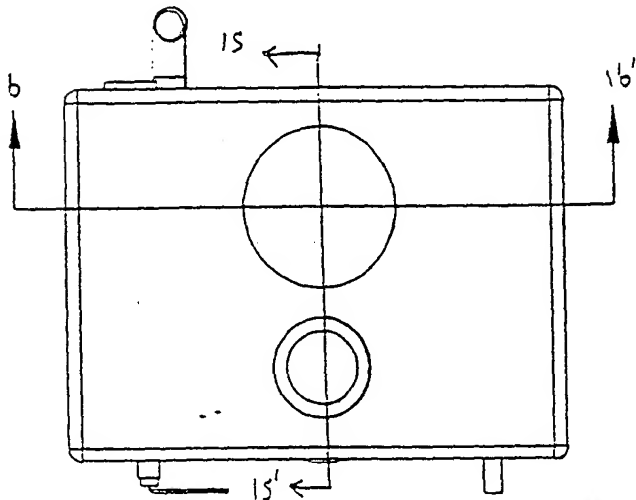


Fig. 14A

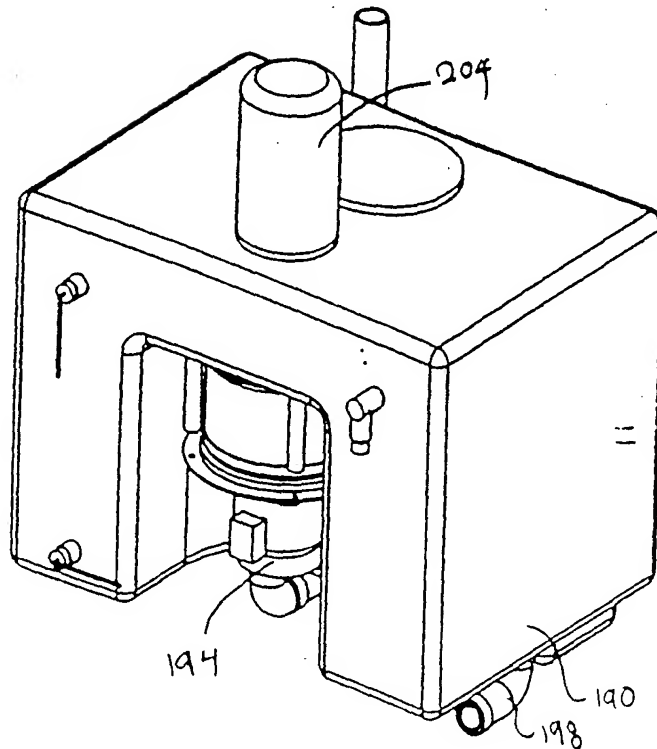
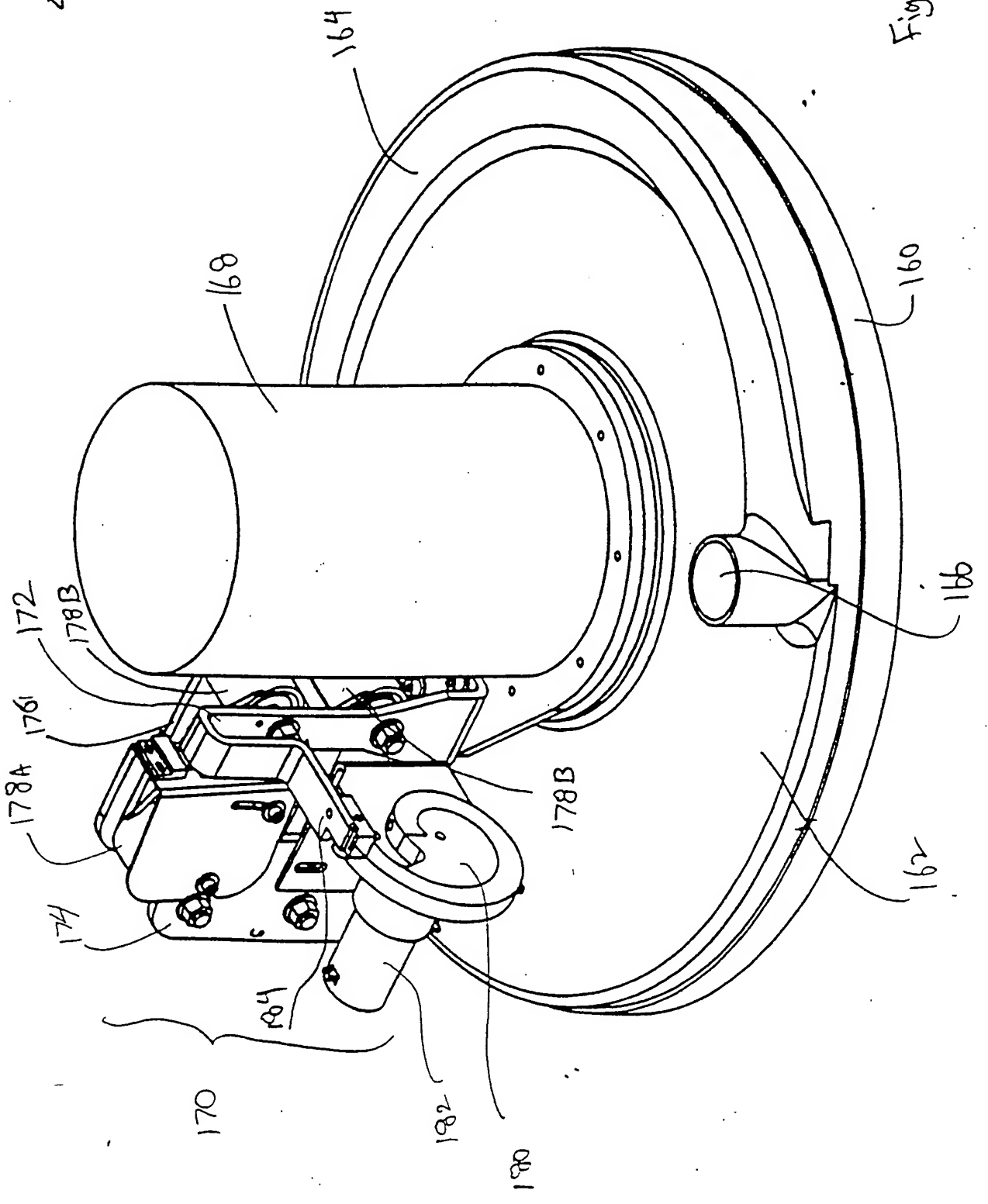


Fig. 14

16

Fig. 17



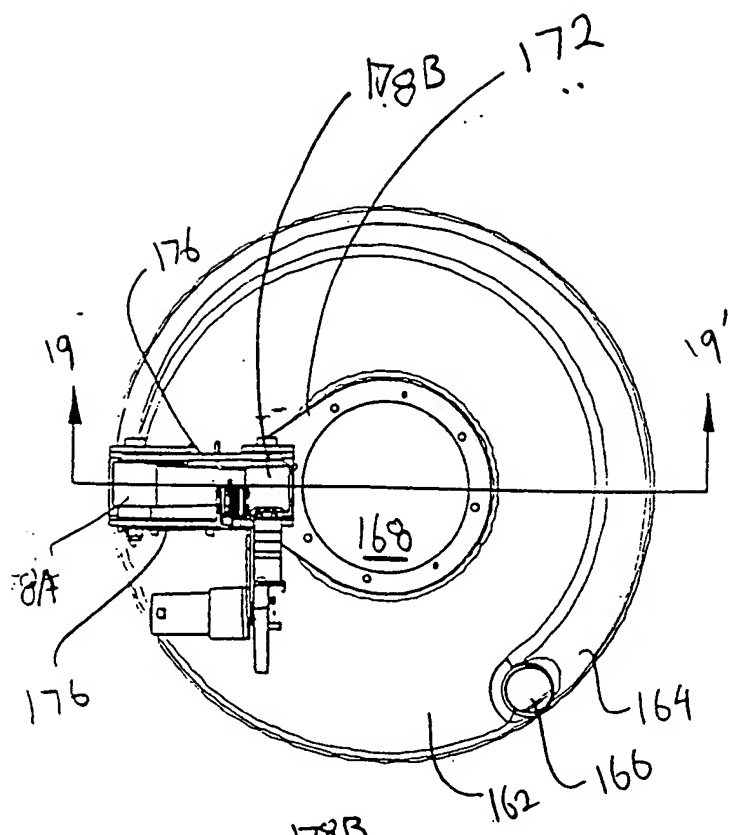


Fig. 18

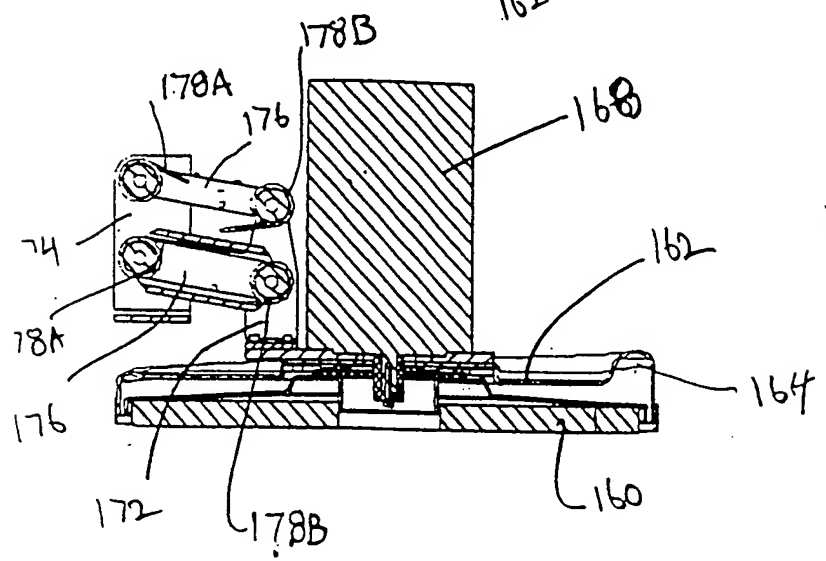


Fig. 19

Fig. 20

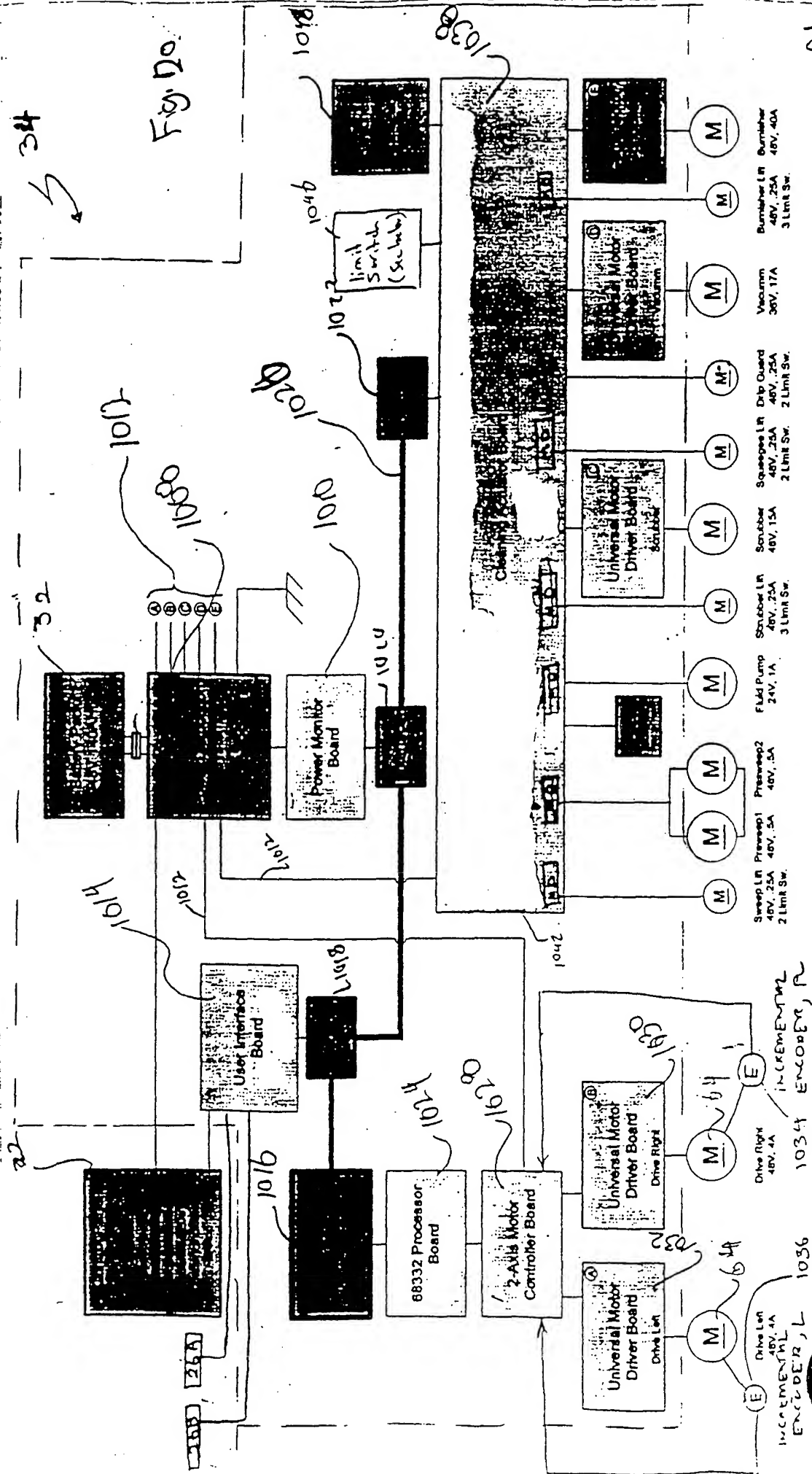


Fig. 21

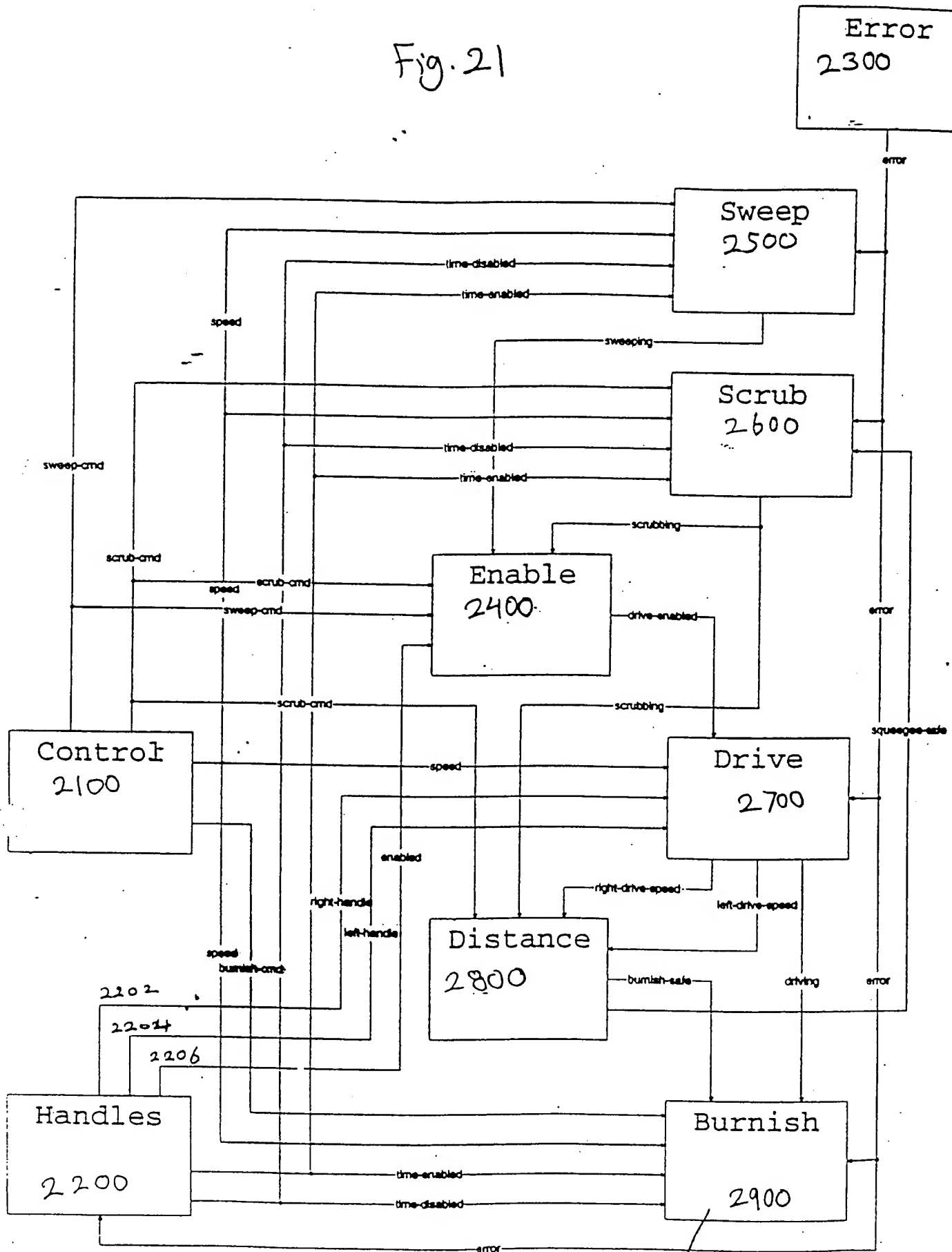


Fig. 24-

2200

HANDLES

variables: enable-time, disable-time

if(NOT error)(

right-handle is ui-right-handle

left-handle is ui-left-handle

] 2202

] 2204

if(right-handle OR left-handle)(

disable-time is FALSE

time-disabled is FALSE

if(NOT enable-time)

enable-time = current time

time-enabled = current time - enable-time

} 2206

else(

enable-time is FALSE

time-enabled is FALSE

if(NOT disable-time)

disable-time = current time

time-disabled = current time - enable-time

} 2208

)

enabled is (right-handle OR left-handle)

} 2210

else(

enabled is FALSE

right-handle is FALSE

left-handle is FALSE

time-enabled is FALSE

time-disabled is FALSE

} 2212

)

ERROR

low level software filters the hopper full sensor

if(ui-hopper-missing OR ui-tank-overflow OR ui-tank-empty OR system-error)
error is TRUE

] 2302

2300

Fig. 22

Fig. 29

24n-28

2800

```

DISTANCE
variable: burnish-distance, squeegee-distance

if(scrub-cmd AND scrubbing){
  if(NOT burnish-distance)
    burnish-distance = 0
  else
    burnish-distance = burnish-distance +
      DistanceFunction(right-drive-speed, left-drive-speed, rate)
}
else
  burnish-distance = FALSE

if(scrubbing)
  squeegee-distance = FALSE
  squeegee-time = FALSE
else
  if(NOT squeegee-distance)
    squeegee-distance = 0
    squeegee-time = current time + squeegee-timeout
  else
    squeegee-distance = squeegee-distance +
      DistanceFunction(right-drive-speed, left-drive-speed, rate)

if(squeegee-time){
  if((squeegee-distance > safe-distance-to-squeegee) OR
    (current-time > squeegee-time))
    squeegee-safe is TRUE
  else
    squeegee-safe is FALSE
}

if(burnish-distance > safe-distance-to-burnish)
  burnish-safe is TRUE
else

```

2802

2804

2806

2808

2810

2812

2814

2816

2818

2820

2822

CONTROL

sweep, scrub, and burnish buttons polled at low level

sweep-cmd is ui-sweep-cmd
 scrub-cmd is ui-scrub-cmd
 burnish-cmd is ui-burnish-cmd
 speed = ui-speed

Fig. 23.

ENABLE

Fig. 25

2400

```
drive-enabled is (enabled AND (NOT(sweep-cmd XOR sweeping)) AND (NOT(scrub-cmd
XOR scrubbing)))
```

2402

DRIVE

Fig. 28

```
**run at speed-ramp-rate times per second**
```

```
(
  if(right-wheel-target-speed is NOT right-wheel-current-speed)
    right-wheel-current-speed = right-wheel-current-speed + minimum of:
      speed-ramp-step
      (right-wheel-target-speed - right-
wheel-current-speed)
  if(left-wheel-target-speed is NOT left-wheel-current-speed)
    left-wheel-current-speed = left-wheel-current-speed + minimum of:
      speed-ramp-step
      (left-wheel-target-speed - left-
wheel-current-speed)
  right-drive-speed = right-wheel-current-speed
  left-drive-speed = left-wheel-current-speed
)

if(drive-enabled AND (NOT error)){
  if(left-handle)
    right-wheel-target-speed = ConvertSpeedFunction(speed)
  else
    right-wheel-target-speed = speed-wheel-stop
  if(right-handle)
    left-wheel-target-speed = ConvertSpeedFunction(speed)
  else
    left-wheel-target-speed = speed-wheel-stop

  if(right-handle OR left-handle)
    if(NOT driving)
      driving is TRUE
    else
      if(driving)
        driving is FALSE
  }
  else{
    right-wheel-target-speed = speed-wheel-stop
    left-wheel-target-speed = speed-wheel-stop
    if(driving)
      driving is FALSE
  }
}
```

2702

2704

2706

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2714

2716

2718

Fig. 26

SWEEP

```

if(sweep-cmd AND (speed is NOT reverse) AND (NOT error)){
  if(time-enabled > delay-on-sweep-start)
    if(sweeper is off)
      turn sweeper on
    if(time-enabled > delay-on-sweep-lower)
      if(sweeper is up)
        sweeper to down
      else
        if(NOT sweeping)
          sweeping is TRUE
        if(time-disabled > delay-off-sweep-raise)
          if(sweeper is down)
            raise sweeper
            if(sweeping)
              sweeping is FALSE
          if(time-disabled > delay-off-sweep-stop)
            if(sweeper is on)
              turn sweeper off
        }
      else(
        if(sweeper is down)
          sweeper to up
          if(sweeping)
            sweeping is FALSE
          if(sweeper is on)
            turn sweeper off
        )
    }
  }

```

Handwritten annotations on the right side of the code block:

- 2502 (next to the first if statement)
- 2504 (next to the first if statement)
- 2506 (next to the first if statement)
- 2508 (next to the first if statement)
- (2510) (next to the first if statement)
- 2512 (next to the first if statement)

```

if(scrub-cmd AND (speed is NOT reverse) AND (NOT error)){
  if(time-enabled > delay-on-scrub-start){
    if(shroud is closed)
      open shroud
    if(scrubber is off)
      turn scrubber on
    if(vacuum is off)
      turn vacuum on
    if(squeegee is up)
      lower squeegee
    if(solenoid is closed)
      open solenoid
  }
  if(time-enabled > delay-on-scrubber-lower){
    if(pump is off)
      turn pump on
    if(scrubber is up)
      lower scrubber
    else
      if(NOT scrubbing)
        scrubbing is TRUE
  }
  if(time-disabled > delay-off-scrubber-raise){
    if(scrubber is down)
      raise scrubber
    if(scrubbing)
      scrubbing is FALSE
    if(pump is on)
      turn pump off
  }
  if(time-disabled > delay-off-scrubber-stop){
    if(scrubber is on)
      turn scrubber off
    if(solenoid is open)
      close solenoid
    if(squeegee-safe){
      if(shroud is open)
        close shroud
      if(squeegee is down)
        raise squeegee
      if(vacuum is on)
        turn vacuum off
    }
  }
}
else(
  if(scrubber is down)
    raise scrubber
  if(scrubbing)
    scrubbing = FALSE
  if(pump is on)
    turn pump off
  if(scrubber is on)
    turn scrubber off
  if(solenoid is open)
    close solenoid
  if((speed is reverse) OR error){
    if(shroud is open)
      close shroud
    if(squeegee is down)
      raise squeegee
    if(vacuum is on)
      turn vacuum off
  }
  else if(squeegee-safe){
    if(shroud is open)
      close shroud
    if(squeegee is down)
      raise squeegee
    if(vacuum is on)
      turn vacuum off
  }
}

```

2602

2604

Fig. 27

2606

2608

2610

2612

2614

2616

2618

Fig.30

BURNISH

```

if(burnish-cmd AND (speed is NOT reverse) AND (NOT error)){
  if(time-enabled > delay-on-burnisher-start){
    if(burnisher off)
      turn burnisher on
    if(burnish-safe AND driving){
      if(burnisher NOT down)
        burnisher to down
      else
        if(NOT burnishing)
          burnishing is TRUE
    }
    else
      if(burnisher NOT at middle)
        burnisher to middle
  }
  if((time-disabled > delay-off-burnish-stop) OR (NOT driving)){
    if(burnisher is down)
      burnisher to middle
    if(burnishing)
      burnishing is FALSE
    if(burnisher is on)
      turn burnisher off
  }
  if(time-disabled > delay-off-burnish-raise)
    if(burnisher NOT up)
      burnisher to up
}
else(
  if(burnisher is down)
    burnisher to up
  if(burnishing)
    burnishing is FALSE
  if(burnisher is on)
    turn burnisher off
)

```

] 2902
] 2904
] 2906
] 2908
] 2910
] 2912
] 2914